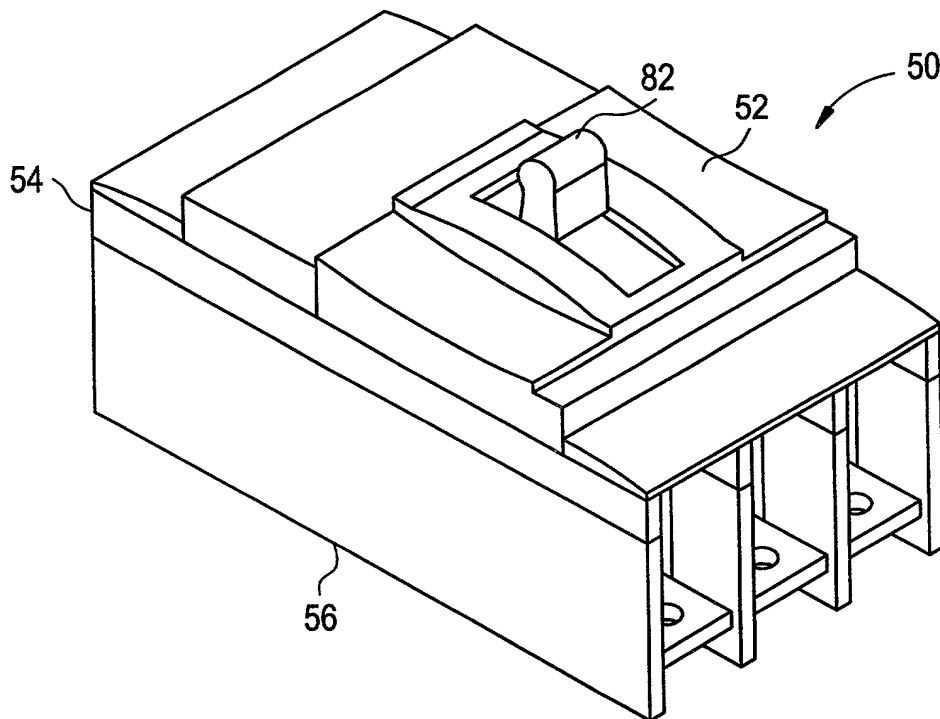


FIG. 1



09/918,993 "01.10.02"

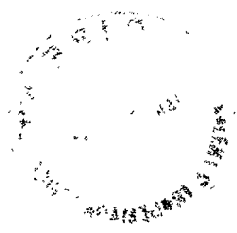
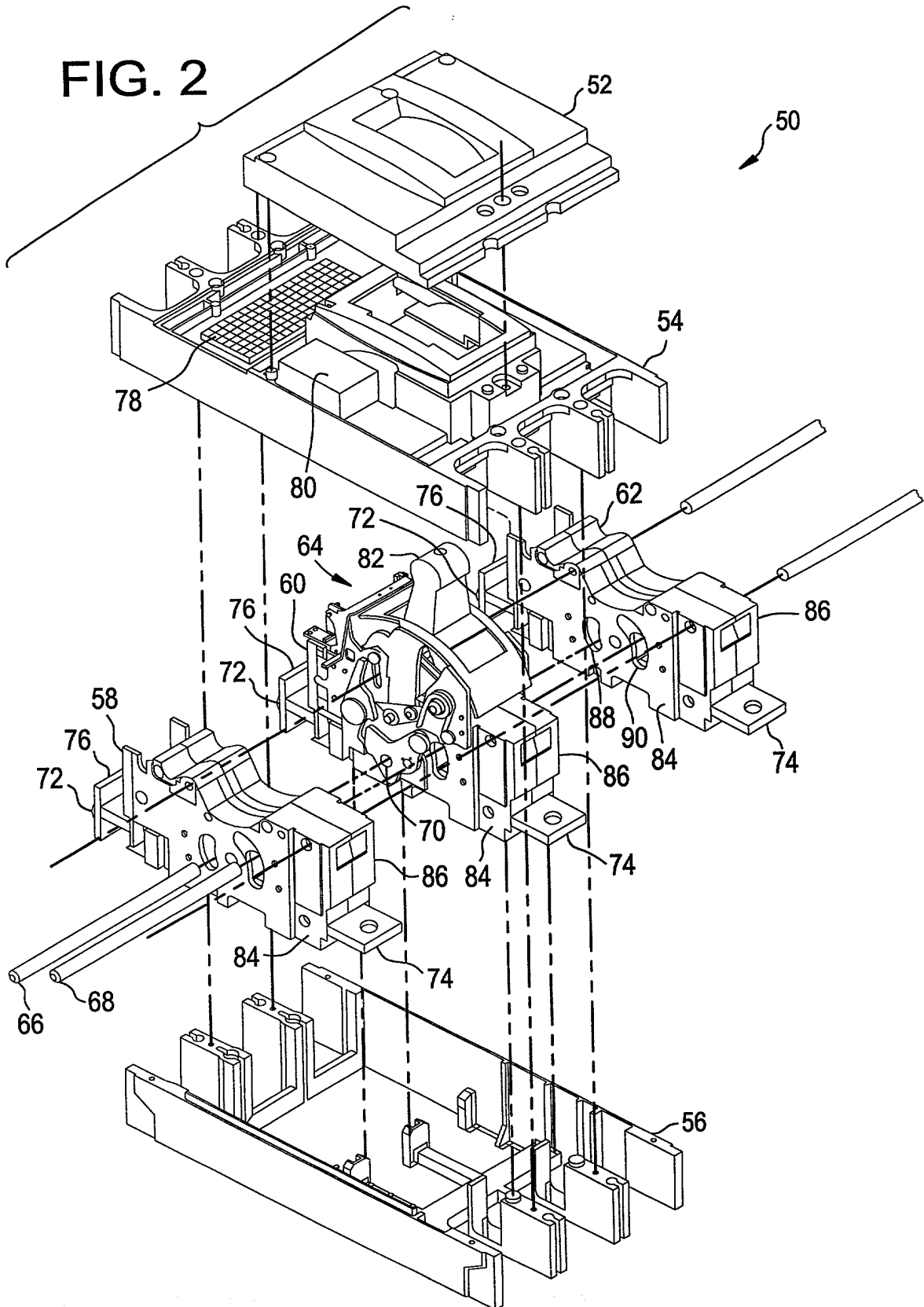


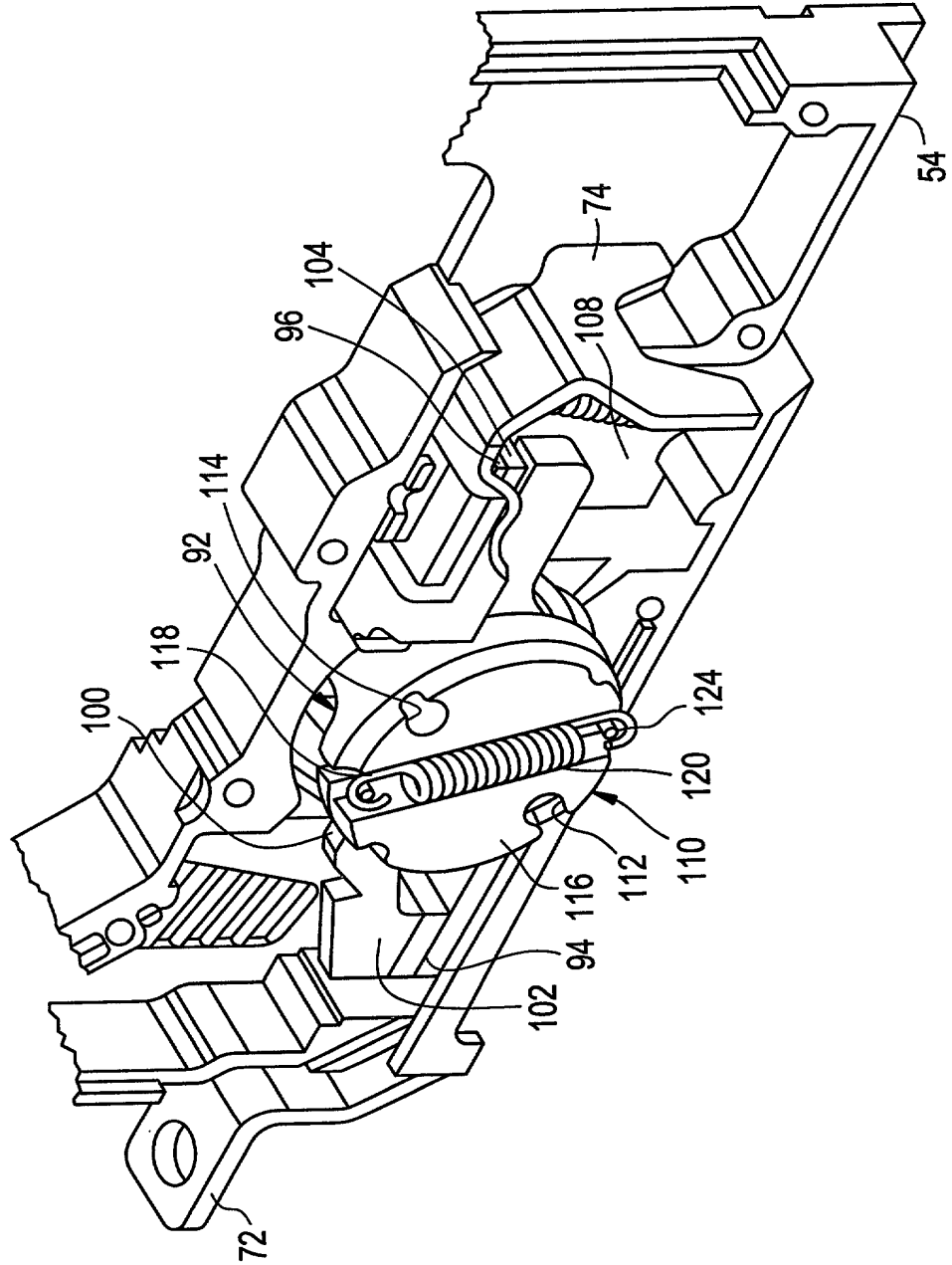
FIG. 2



200110" E668T660



FIG. 3



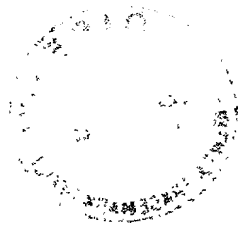


FIG. 4

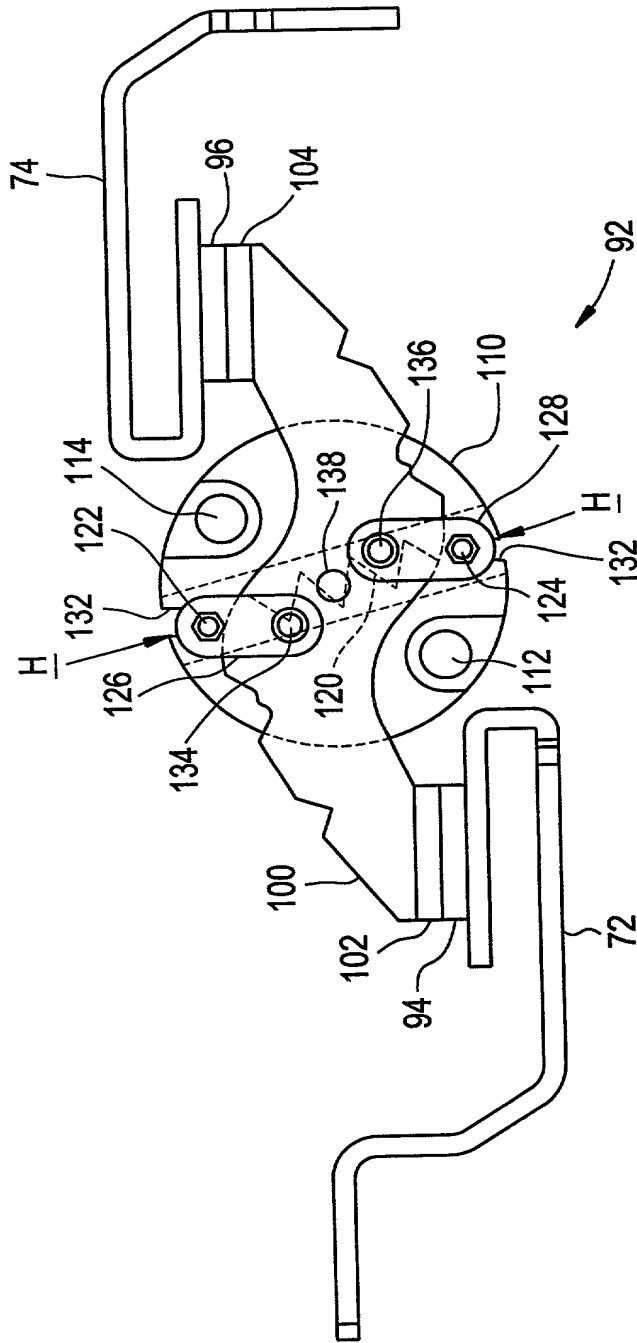
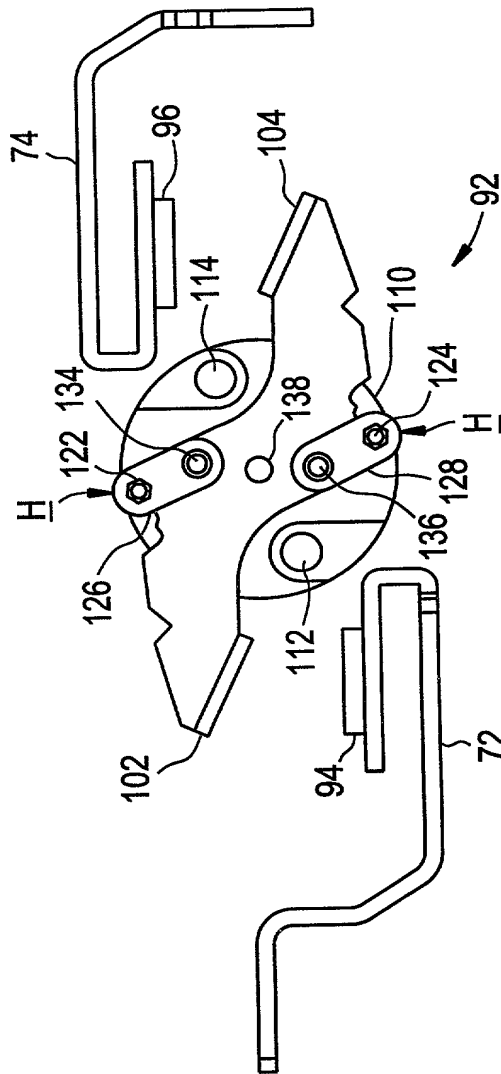


Table 1. Demographic characteristics of the study population	
Age (years)	65.0 ± 10.0
Gender (male/female)	100/100
Education (years)	12.0 ± 2.0
Occupation (white/blue)	100/100
Marital status (married/divorced/widowed)	100/100/100
Smoking status (smoker/nonsmoker)	100/100
Alcohol consumption (yes/no)	100/100
Comorbidities (hypertension/diabetes/cholesterol)	100/100/100
Medication (antidepressant/antipsychotic)	100/100
Duration of illness (years)	10.0 ± 5.0
Family history (yes/no)	100/100
Previous hospitalizations (yes/no)	100/100
Current symptoms (depression/anxiety)	100/100
Functional status (good/poor)	100/100
Social support (yes/no)	100/100
Quality of life (high/low)	100/100
Healthcare utilization (yes/no)	100/100
Cost of care (high/low)	100/100
Healthcare satisfaction (yes/no)	100/100
Healthcare access (yes/no)	100/100
Healthcare quality (yes/no)	100/100
Healthcare safety (yes/no)	100/100
Healthcare effectiveness (yes/no)	100/100
Healthcare equity (yes/no)	100/100
Healthcare transparency (yes/no)	100/100
Healthcare accountability (yes/no)	100/100
Healthcare responsibility (yes/no)	100/100
Healthcare integrity (yes/no)	100/100
Healthcare honesty (yes/no)	100/100
Healthcare justice (yes/no)	100/100
Healthcare compassion (yes/no)	100/100
Healthcare empathy (yes/no)	100/100
Healthcare respect (yes/no)	100/100
Healthcare dignity (yes/no)	100/100
Healthcare autonomy (yes/no)	100/100
Healthcare privacy (yes/no)	100/100
Healthcare confidentiality (yes/no)	100/100
Healthcare security (yes/no)	100/100
Healthcare risk management (yes/no)	100/100
Healthcare incident response (yes/no)	100/100
Healthcare patient safety (yes/no)	100/100
Healthcare staff safety (yes/no)	100/100
Healthcare facility safety (yes/no)	100/100
Healthcare equipment safety (yes/no)	100/100
Healthcare medication safety (yes/no)	100/100
Healthcare food safety (yes/no)	100/100
Healthcare water safety (yes/no)	100/100
Healthcare air safety (yes/no)	100/100
Healthcare fire safety (yes/no)	100/100
Healthcare disaster preparedness (yes/no)	100/100
Healthcare emergency response (yes/no)	100/100
Healthcare crisis management (yes/no)	100/100
Healthcare business continuity (yes/no)	100/100
Healthcare information management (yes/no)	100/100
Healthcare data management (yes/no)	100/100
Healthcare system management (yes/no)	100/100
Healthcare process management (yes/no)	100/100
Healthcare performance management (yes/no)	100/100
Healthcare quality management (yes/no)	100/100
Healthcare risk management (yes/no)	100/100
Healthcare compliance management (yes/no)	100/100
Healthcare regulatory management (yes/no)	100/100
Healthcare accreditation management (yes/no)	100/100
Healthcare certification management (yes/no)	100/100
Healthcare standard management (yes/no)	100/100
Healthcare best practice management (yes/no)	100/100
Healthcare innovation management (yes/no)	100/100
Healthcare research management (yes/no)	100/100
Healthcare development management (yes/no)	100/100
Healthcare improvement management (yes/no)	100/100
Healthcare change management (yes/no)	100/100
Healthcare communication management (yes/no)	100/100
Healthcare collaboration management (yes/no)	100/100
Healthcare partnership management (yes/no)	100/100
Healthcare network management (yes/no)	100/100
Healthcare ecosystem management (yes/no)	100/100
Healthcare value management (yes/no)	100/100
Healthcare impact management (yes/no)	100/100
Healthcare reputation management (yes/no)	100/100
Healthcare brand management (yes/no)	100/100
Healthcare marketing management (yes/no)	100/100
Healthcare sales management (yes/no)	100/100
Healthcare distribution management (yes/no)	100/100
Healthcare logistics management (yes/no)	100/100
Healthcare supply chain management (yes/no)	100/100
Healthcare procurement management (yes/no)	100/100
Healthcare financial management (yes/no)	100/100
Healthcare human resources management (yes/no)	100/100
Healthcare information technology management (yes/no)	100/100
Healthcare legal management (yes/no)	100/100
Healthcare ethics management (yes/no)	100/100
Healthcare governance management (yes/no)	100/100
Healthcare leadership management (yes/no)	100/100
Healthcare management (yes/no)	100/100

FIG. 5



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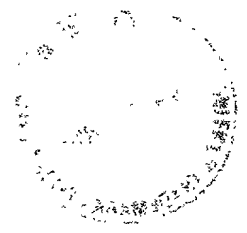


FIG. 6

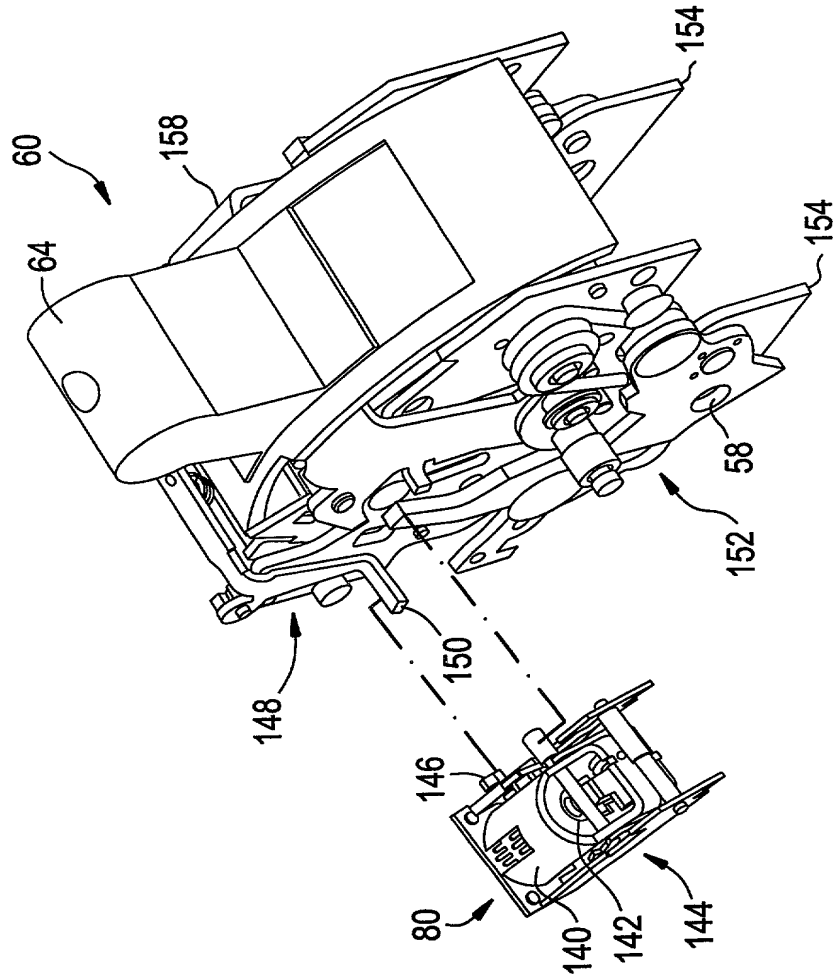
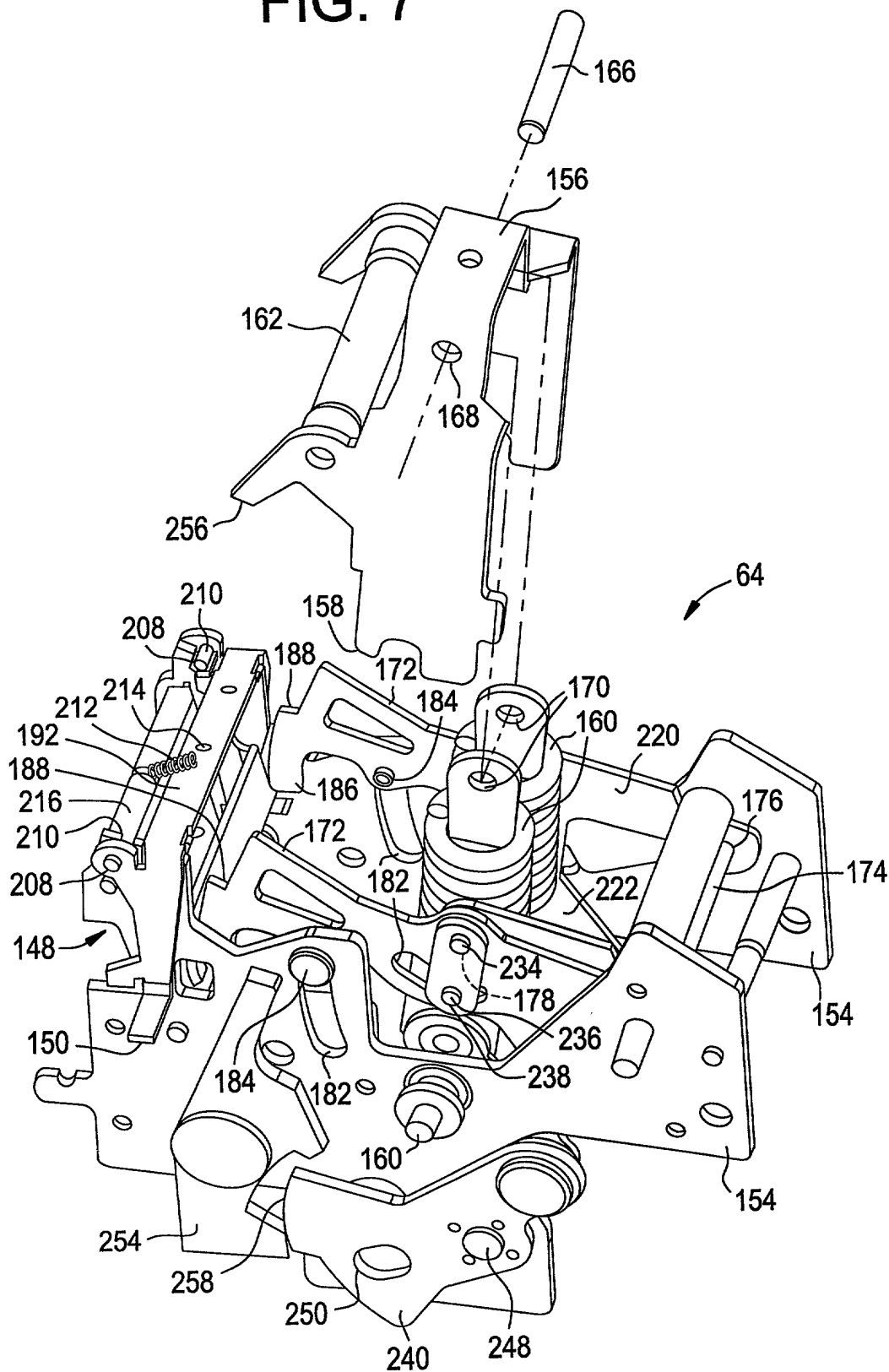
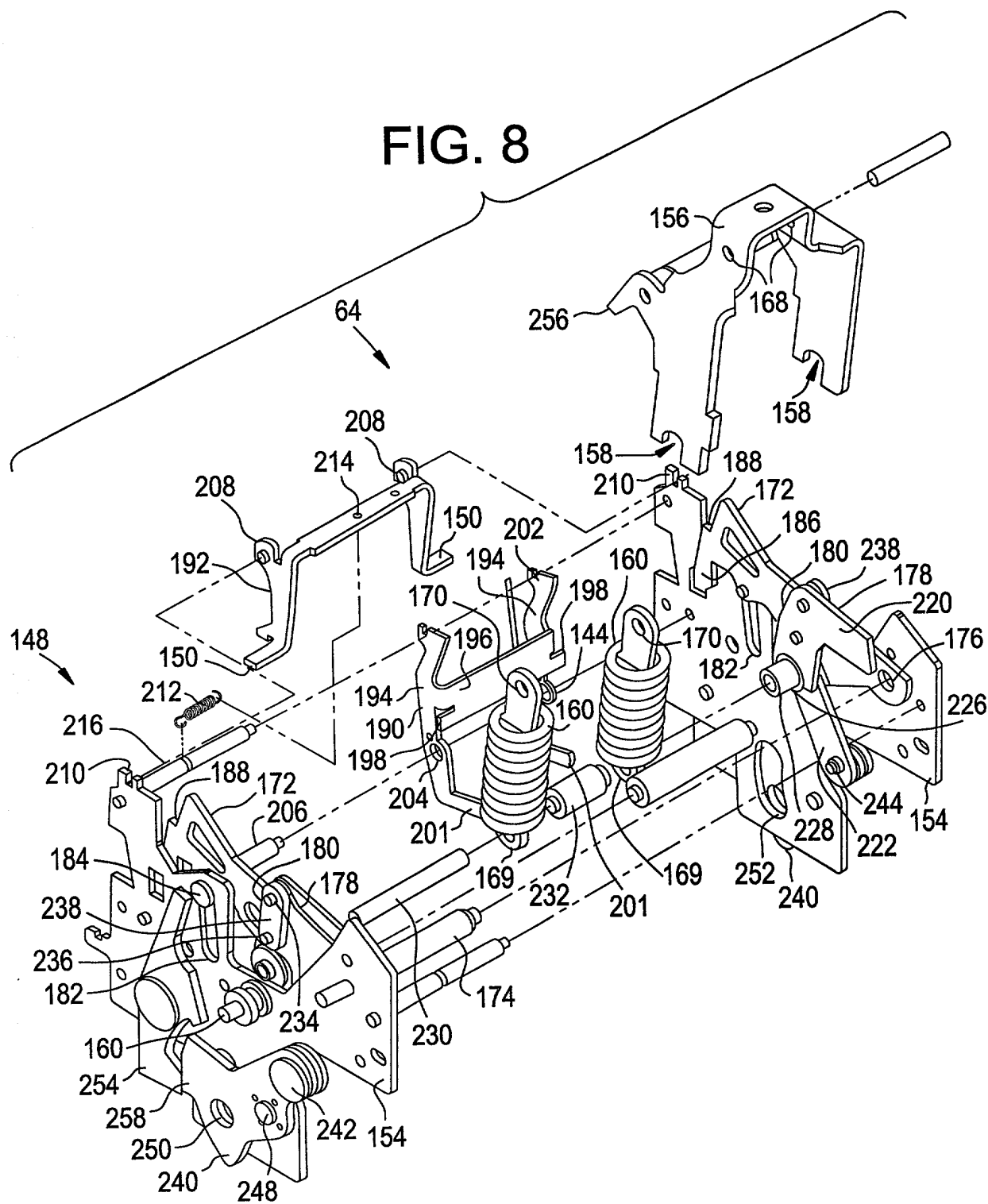


FIG. 7



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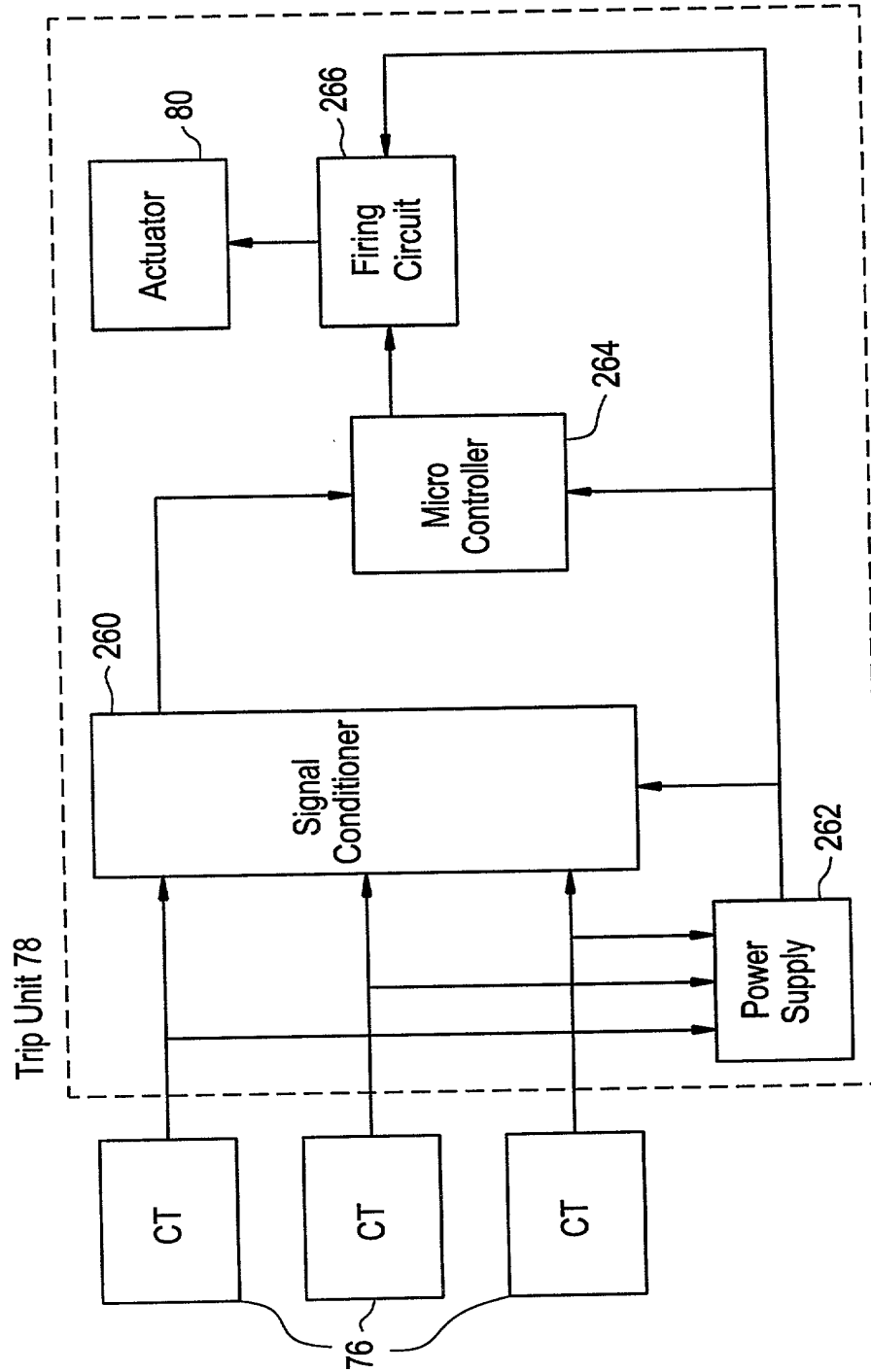
FIG. 8





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FIG. 9



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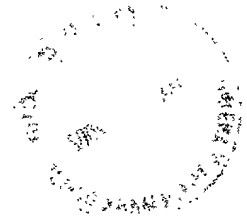
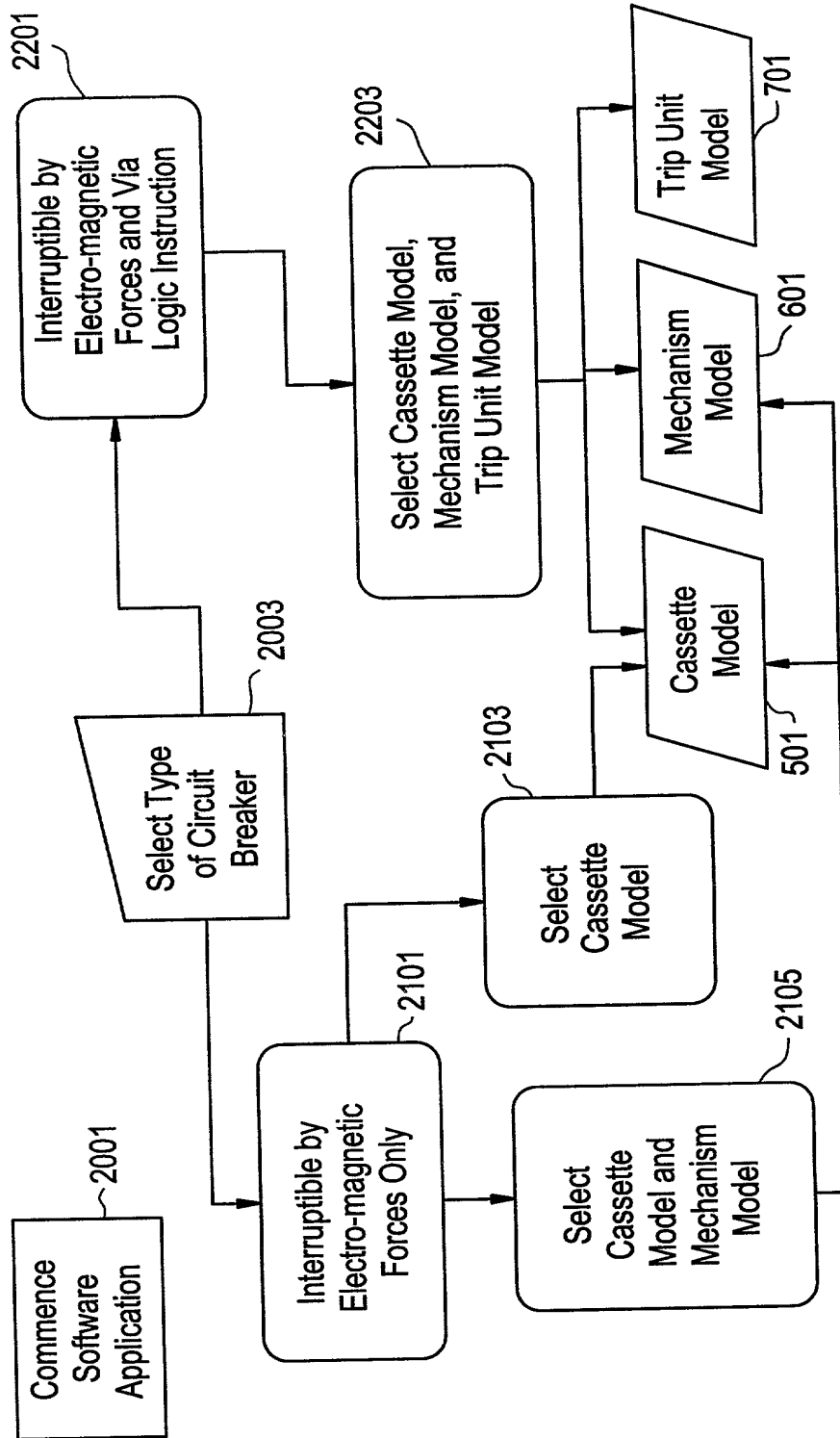


FIG. 10



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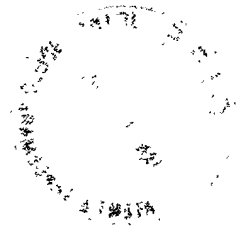
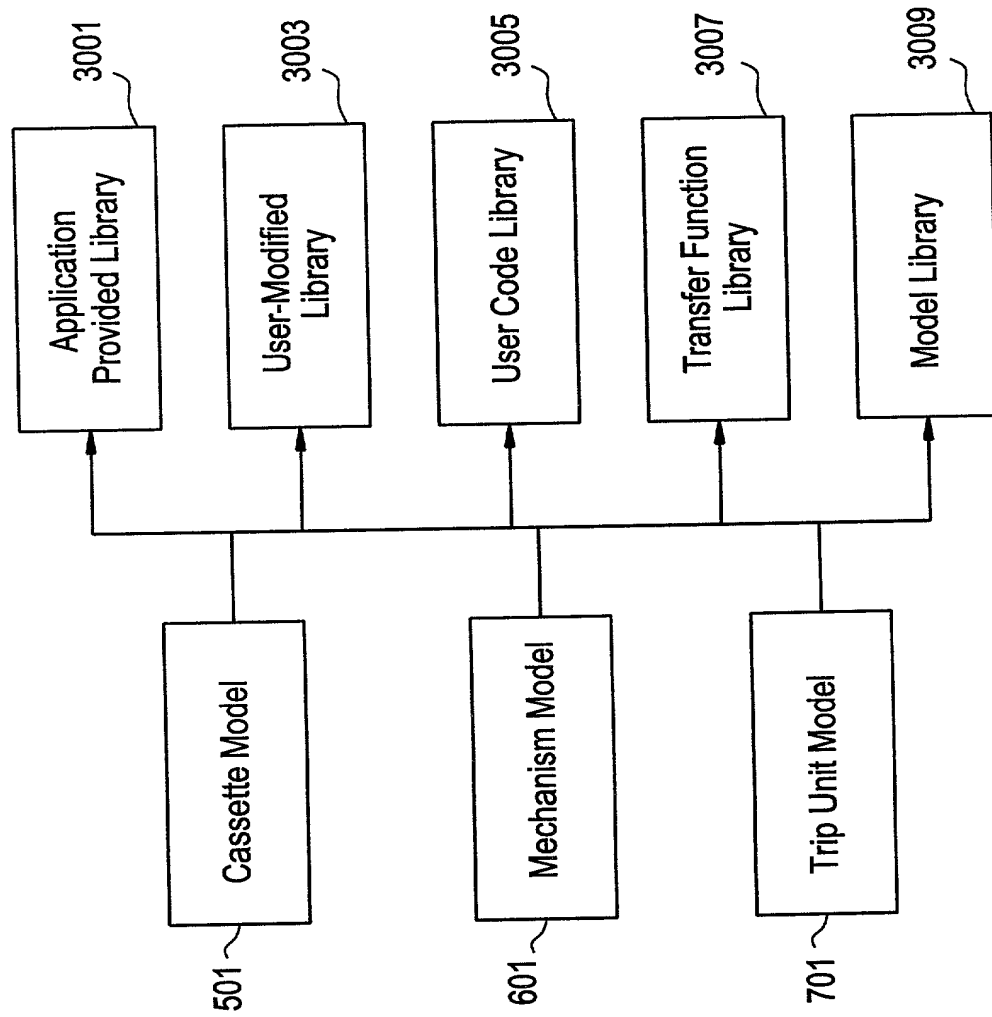
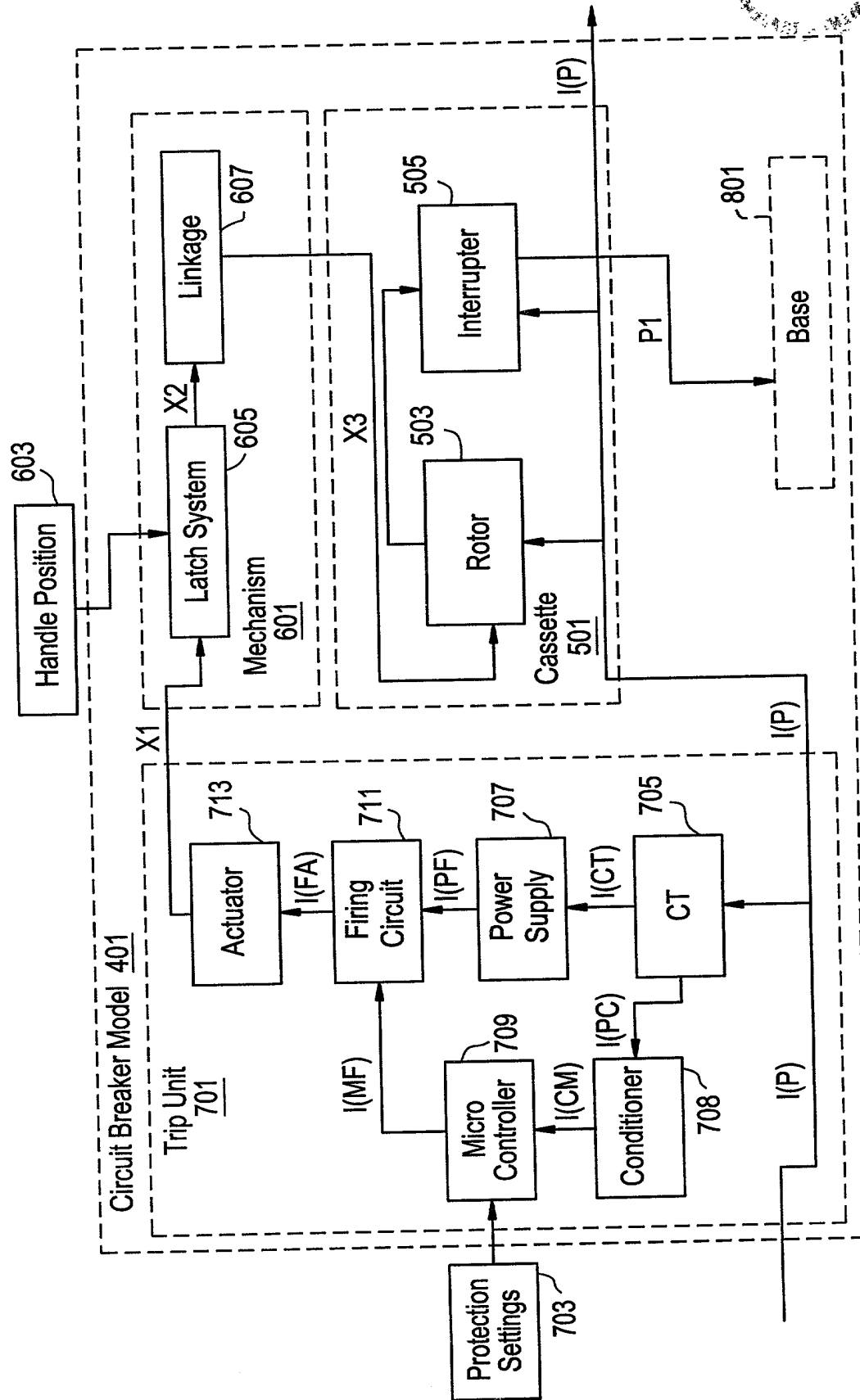


FIG. 11



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FIG. 12



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FIG. 13

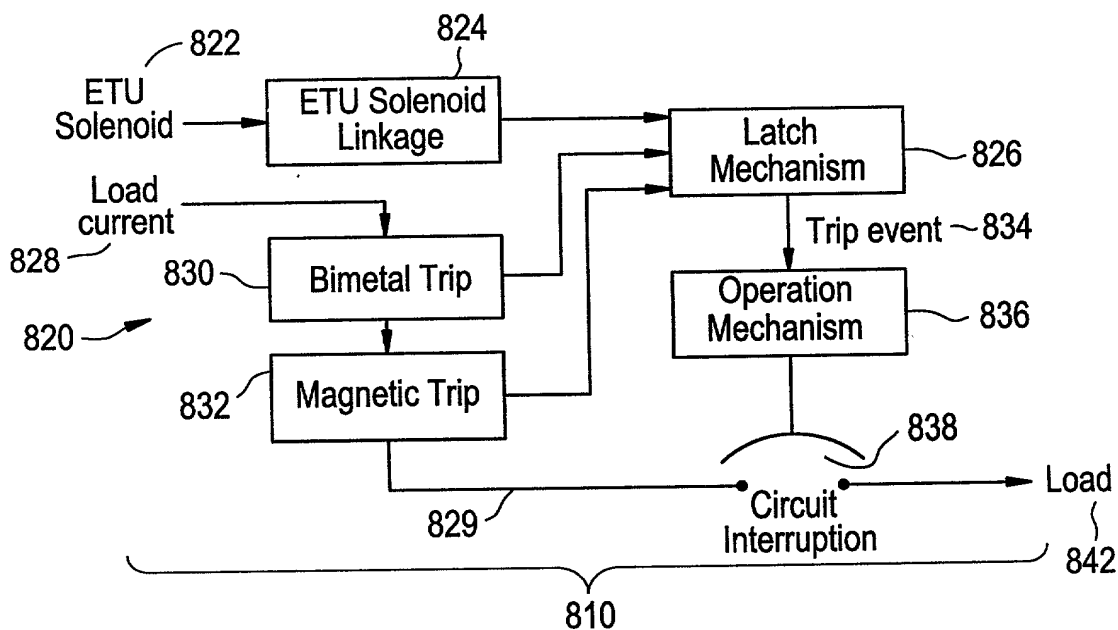


FIG. 14

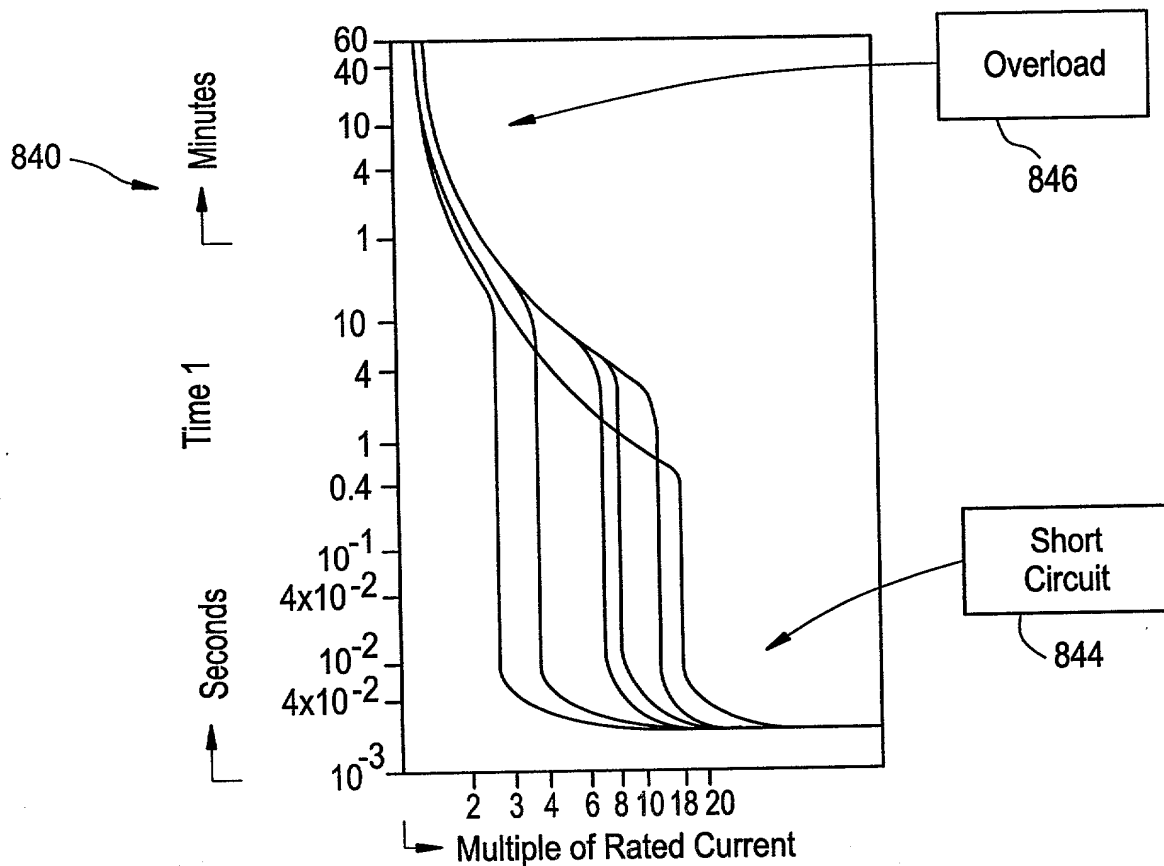


FIG. 15

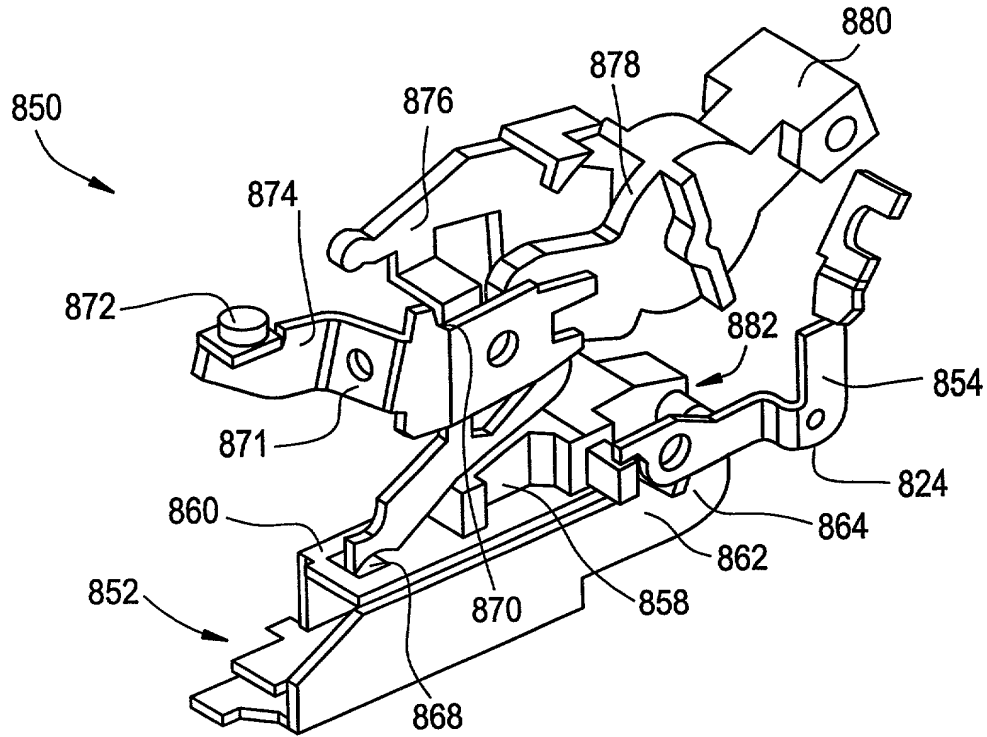


FIG. 16

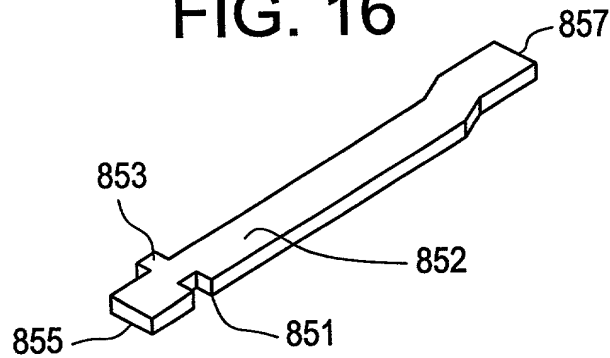


FIG. 17

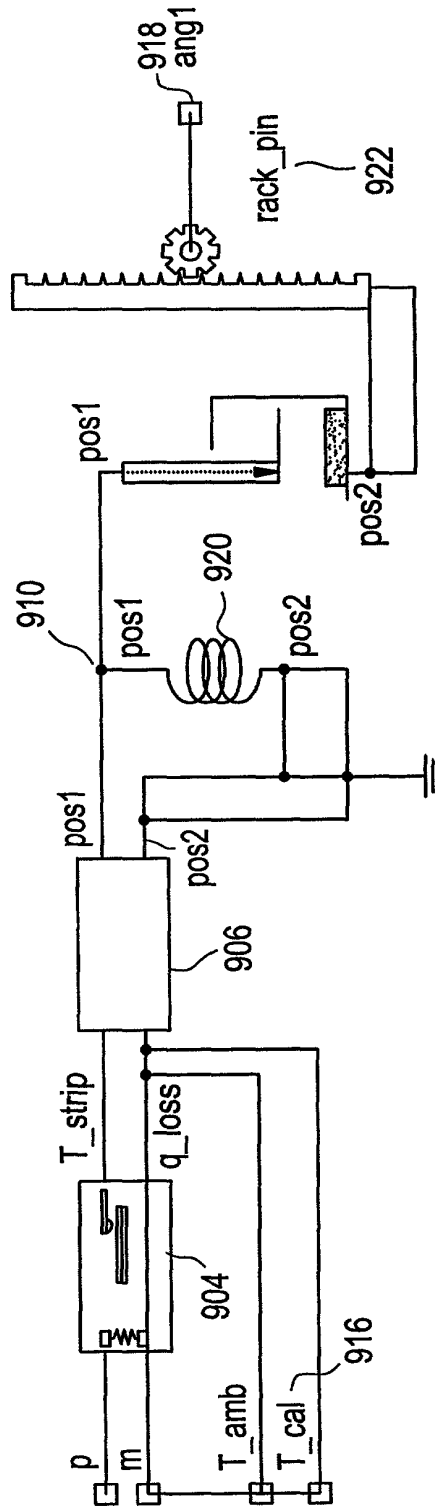


FIG. 18

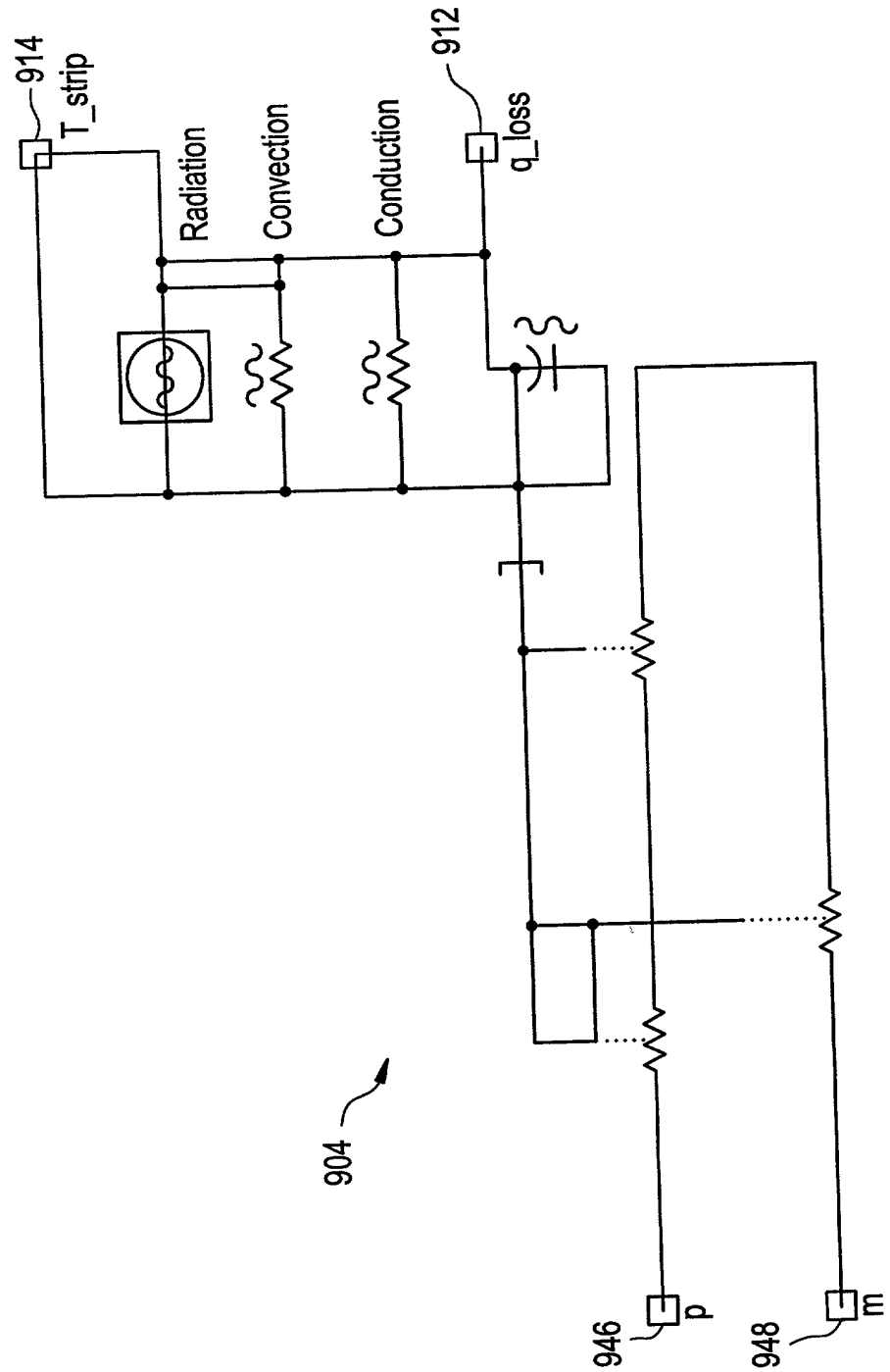


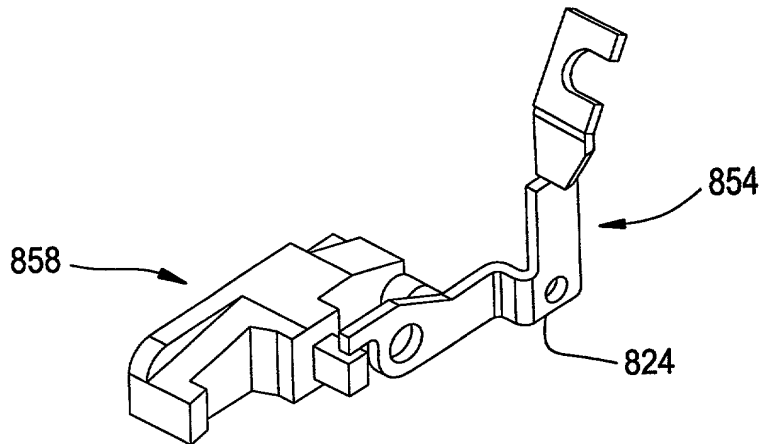


FIG. 19

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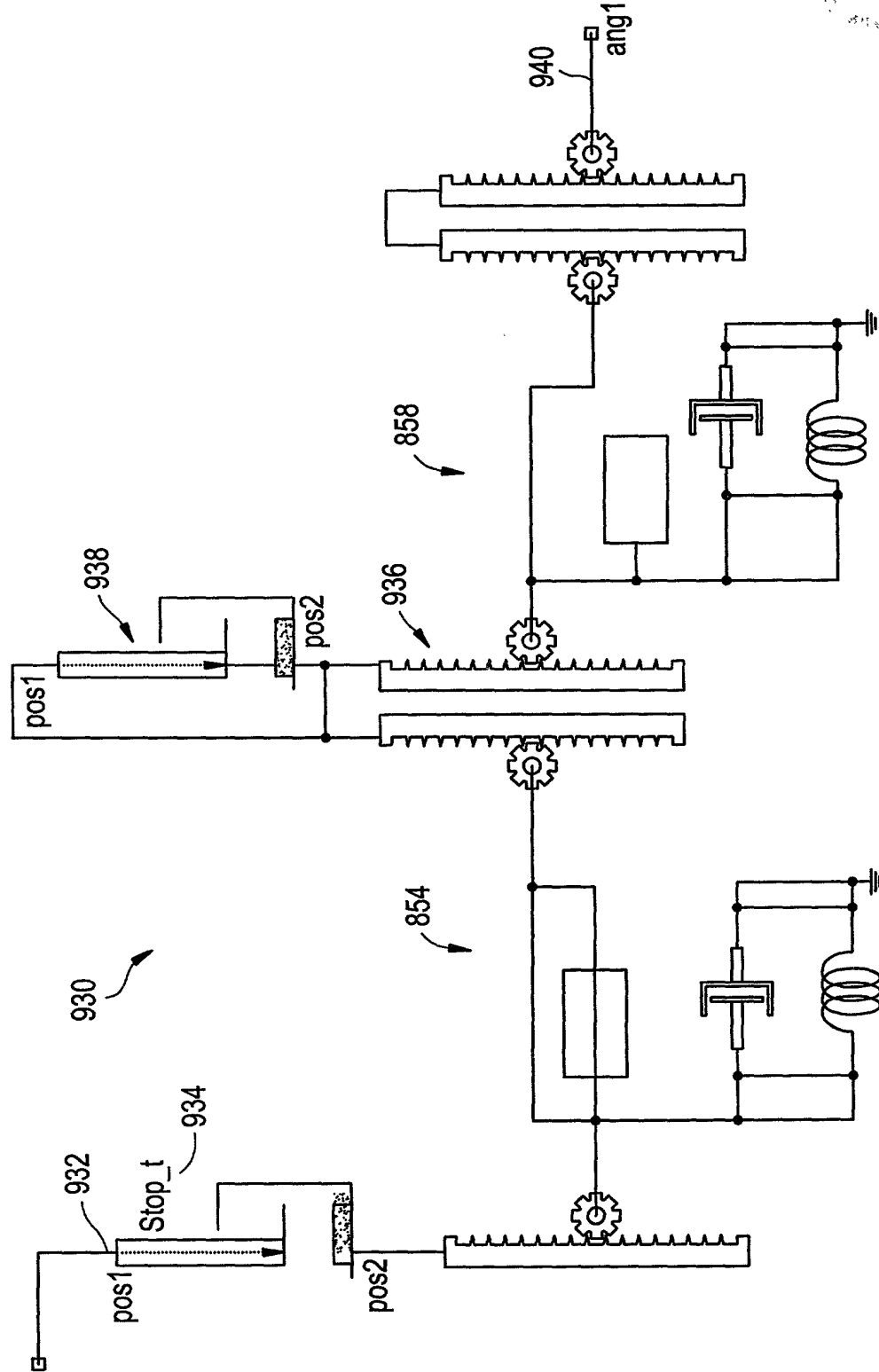
```
values {  
    deltaT = tc(th) - tc(tl)  
    Pout = F_s*deltaT*E_s*w_s*t_s*t_s /  
           (4 * l_s) * 4.24358  
}  
equations {  
    # no input heat flow  
    p(th->tl) += 0  
    # output force  
    frc_N (pos1->pos2) += Pout  
}
```

FIG. 20

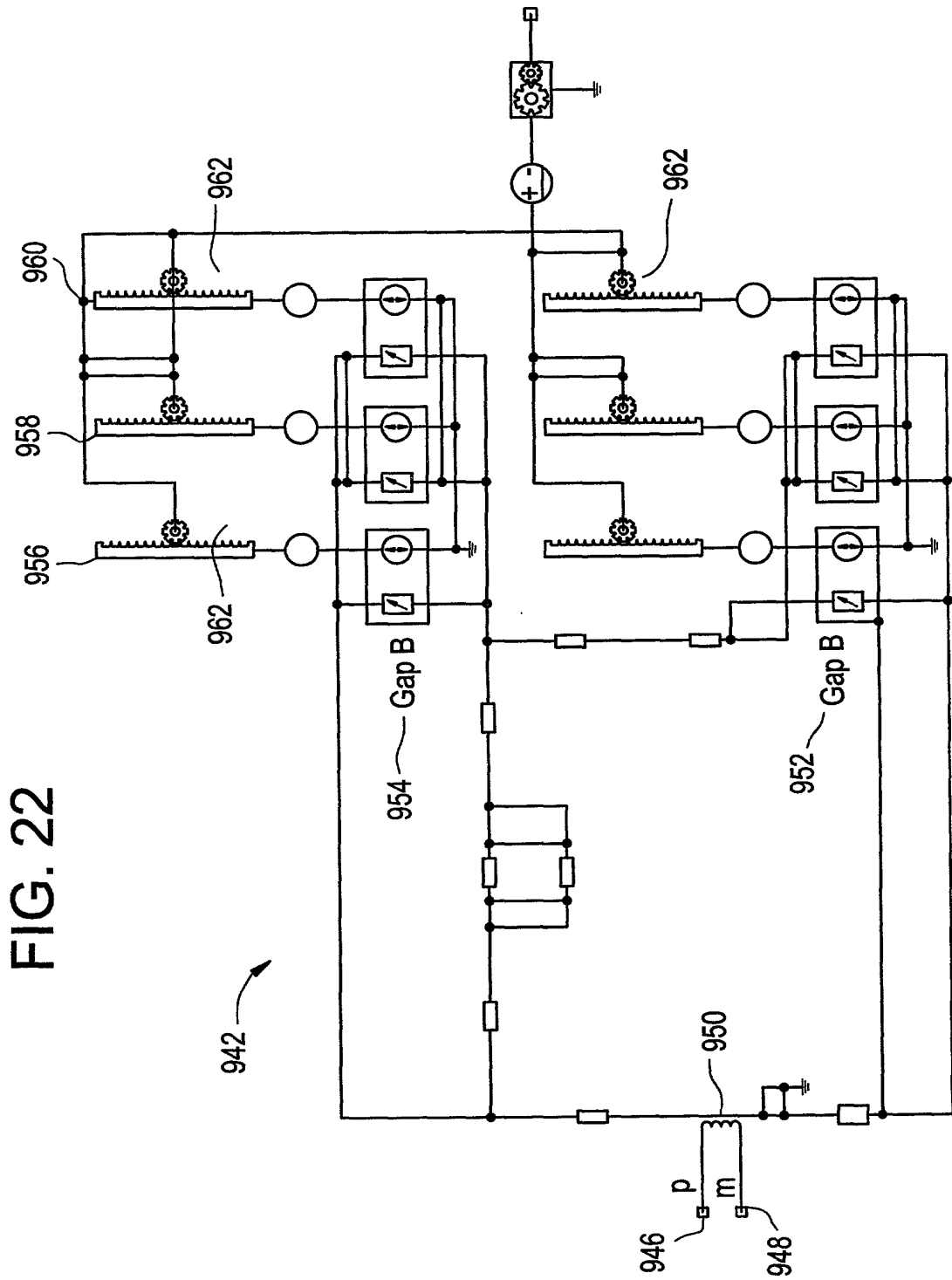


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FIG. 21



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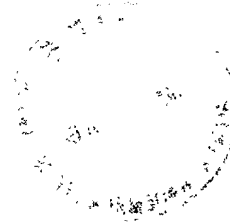


FIG. 23

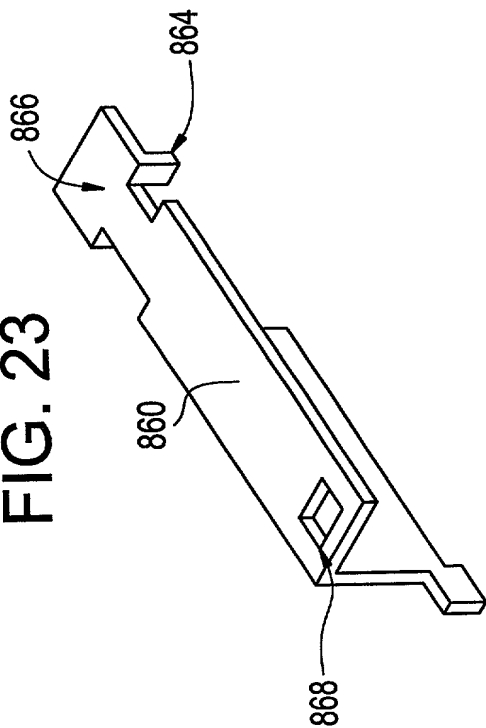


FIG. 25

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latch\_pos. sin  
code\_snippet

values {

delta = pos\_m(pos1)

theta\_op = ang\_rad (ang1)

if (delta > threshold) tq\_out = 0

else tq\_out = on\_torque + slope + (threshold - delta)

# if the operating arm is already unlatched, no torque output possible.

if ((time > lu) & (theta\_op < -5m)) tq\_out = 0

}

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FIG. 24

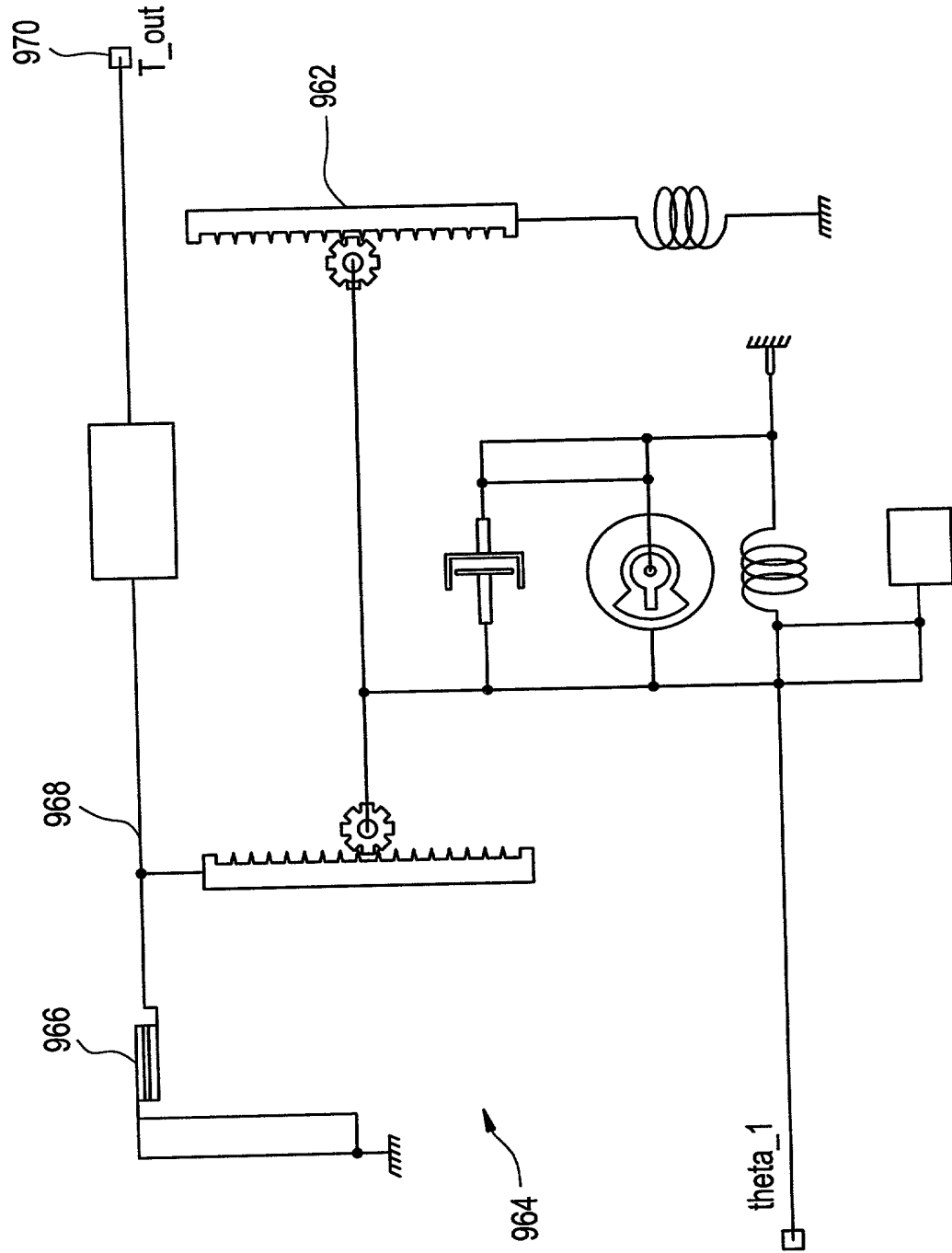


FIG. 26

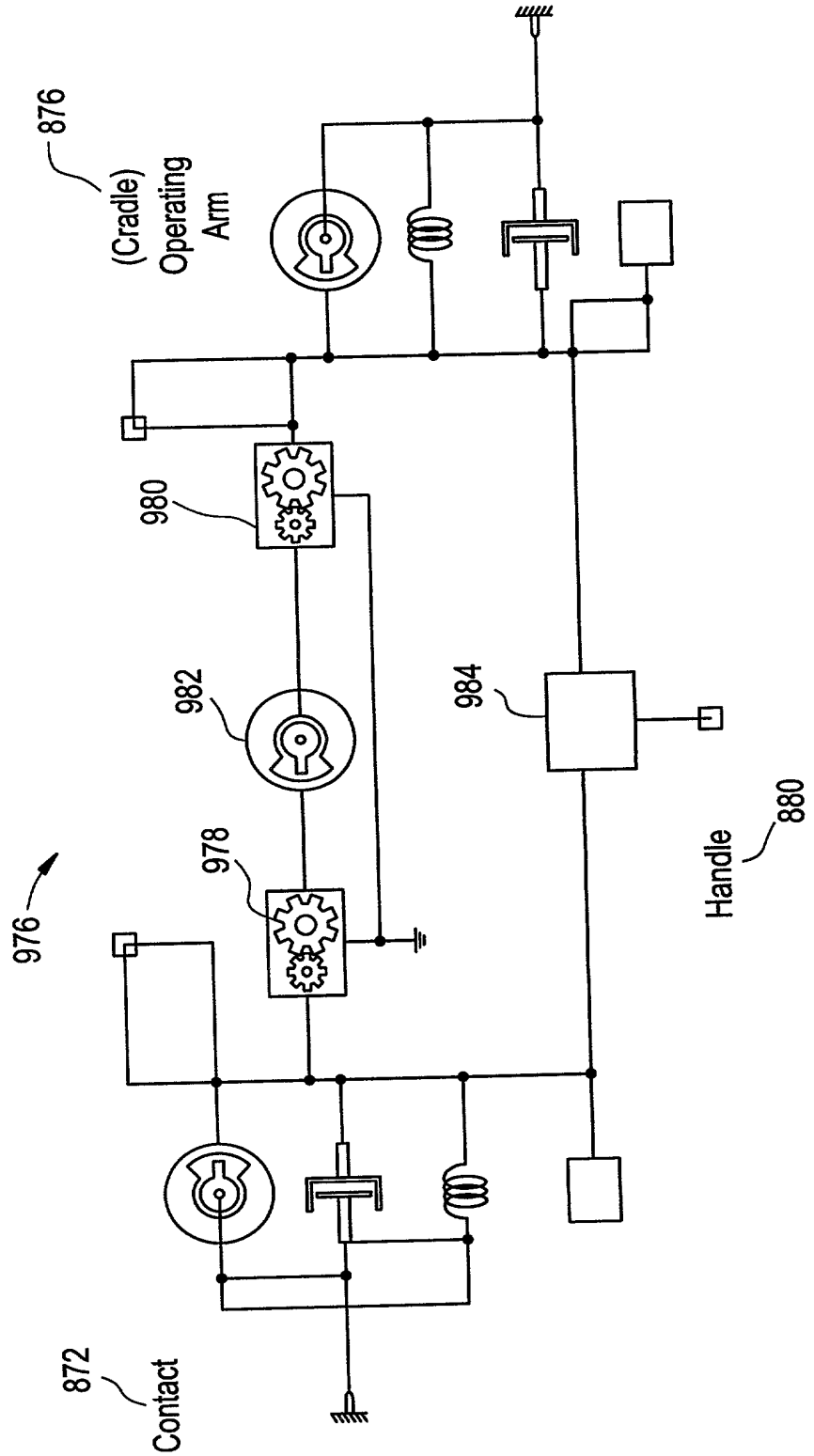


FIG. 27

```

spring_coupling.sin
code_snippet      —984
values {
    theta_c = ang_rad (ang1)
    theta_op = ang_rad (ang2)
    theta_h = ang_rad (ang3)
    x_cp = r_h * cos (theta_h + phi_h) + x_off_h
    y_cp = r_h * sin (theta_h + phi_h) + y_off_h
    x_op = r_op * cos (theta_op + phi_op) + x_off_op
    y_op = r_op * sin (theta_op + phi_op) + y_off_op
    x_c = r_c * cos (theta_c + phi_c) + x_cp
    y_c = r_c * sin (theta_c + phi_c) + y_cp
    deltax = x_op - x_c
    deltax = y_op - y_c
    delta = sqrt (abs(deltax * deltax + deltay * deltay1)
    x_spring_f = k * (delta - deltaC) * deltax / delta
    y_spring_f = k * (delta - deltaC) * deltay / delta
    # Calculate spring torque applied to each member - use normal radial distances to
    # spring force components.
    tq_op = x_spring_f * r_op * sin(theta_op + phi_op) + -1 * y_spring_f * r_op * cos (theta_op +
    phi_op)
    tq_c = -1 * x_spring_f * r_c * sin(theta_c + phi_c) + y_spring_f * r_c * cos (theta_c + phi_c)
    }

```

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FIG. 28

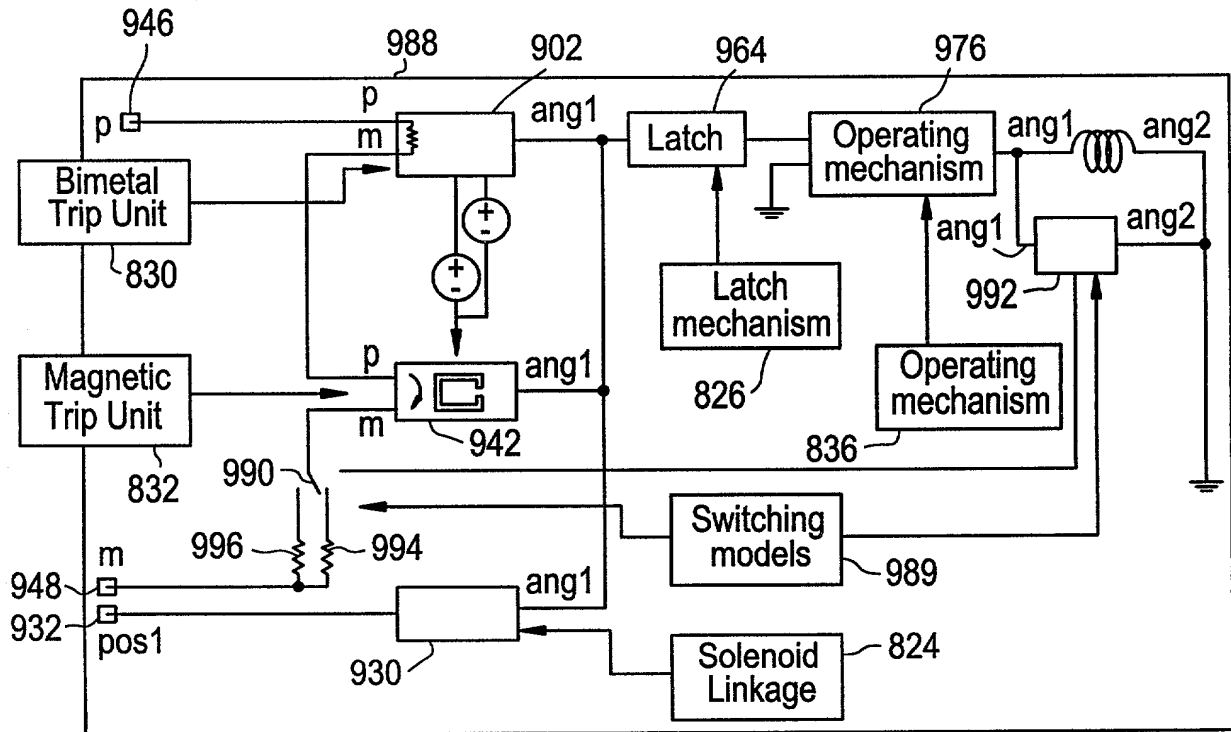
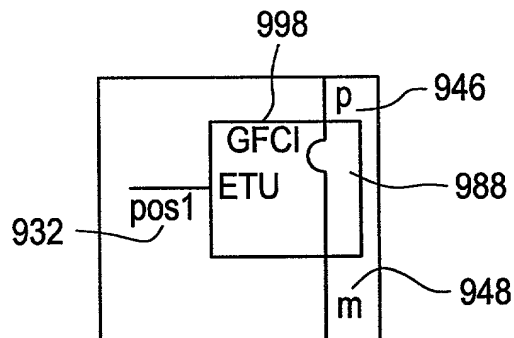


FIG. 29







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FIG. 30

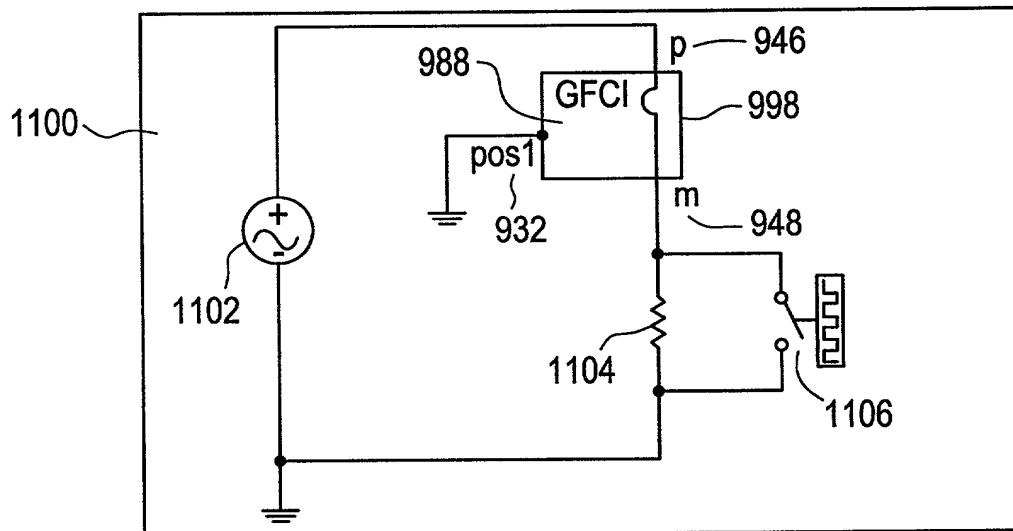


FIG. 31

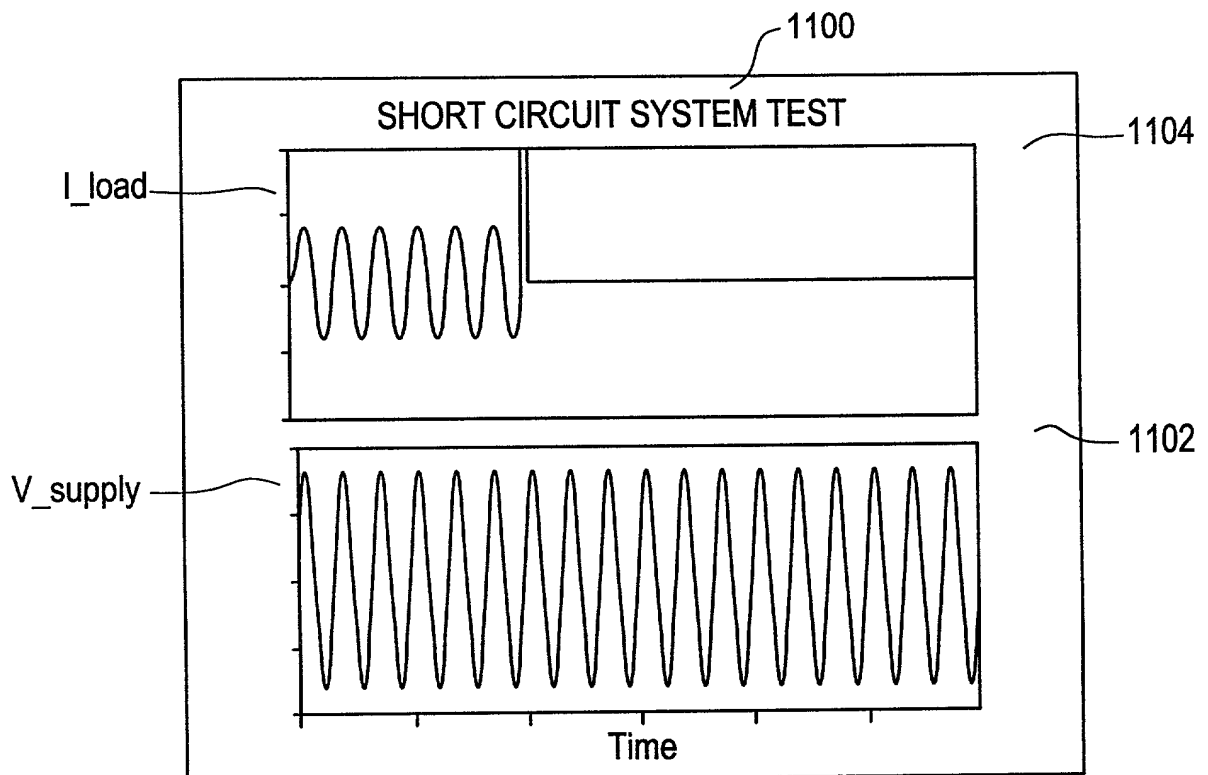


FIG. 32

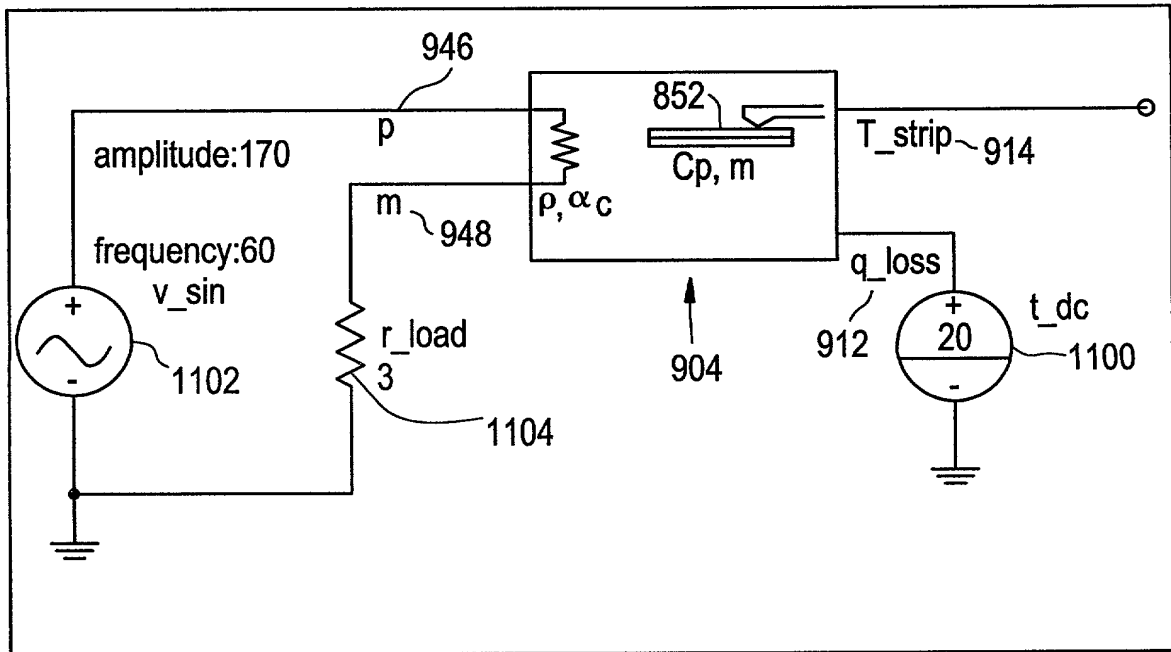
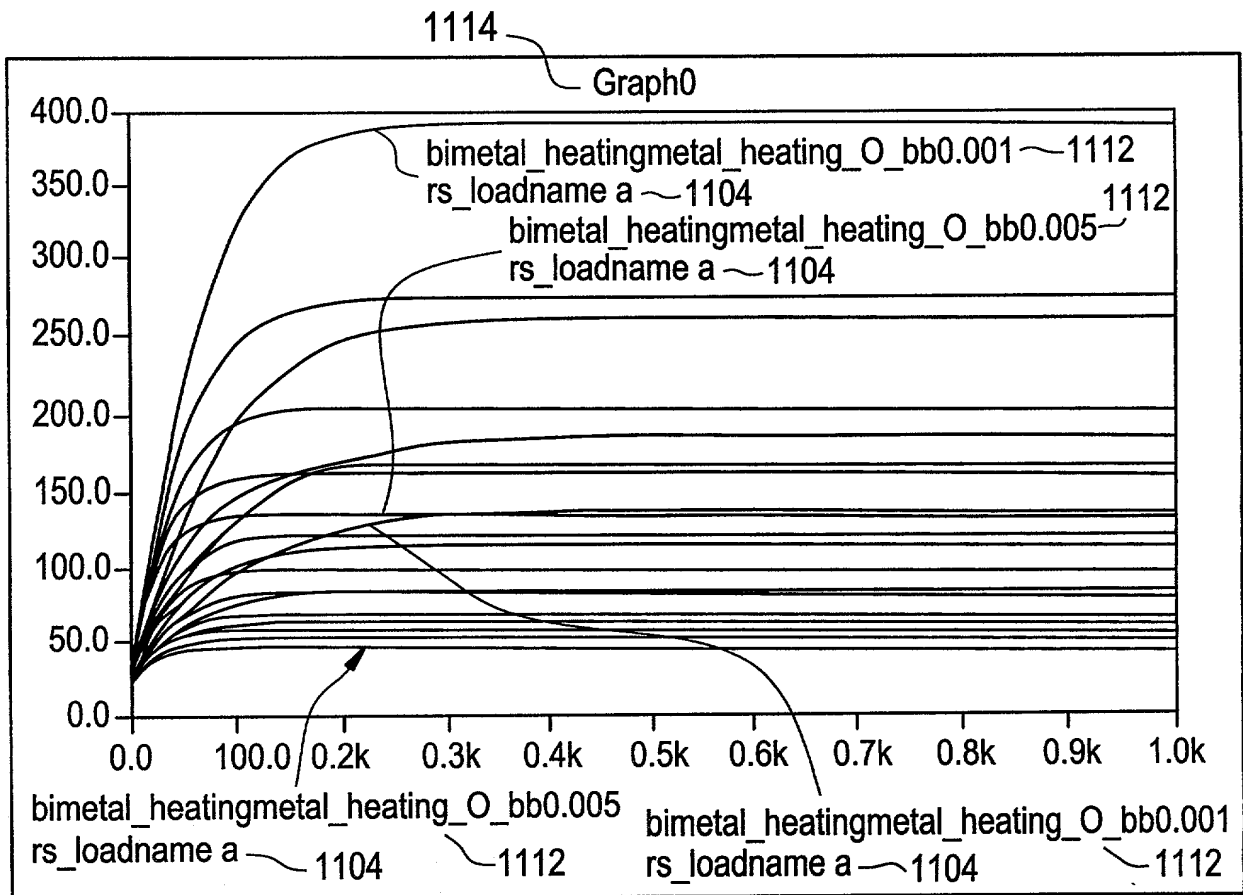


FIG. 33



**FIG. 34**

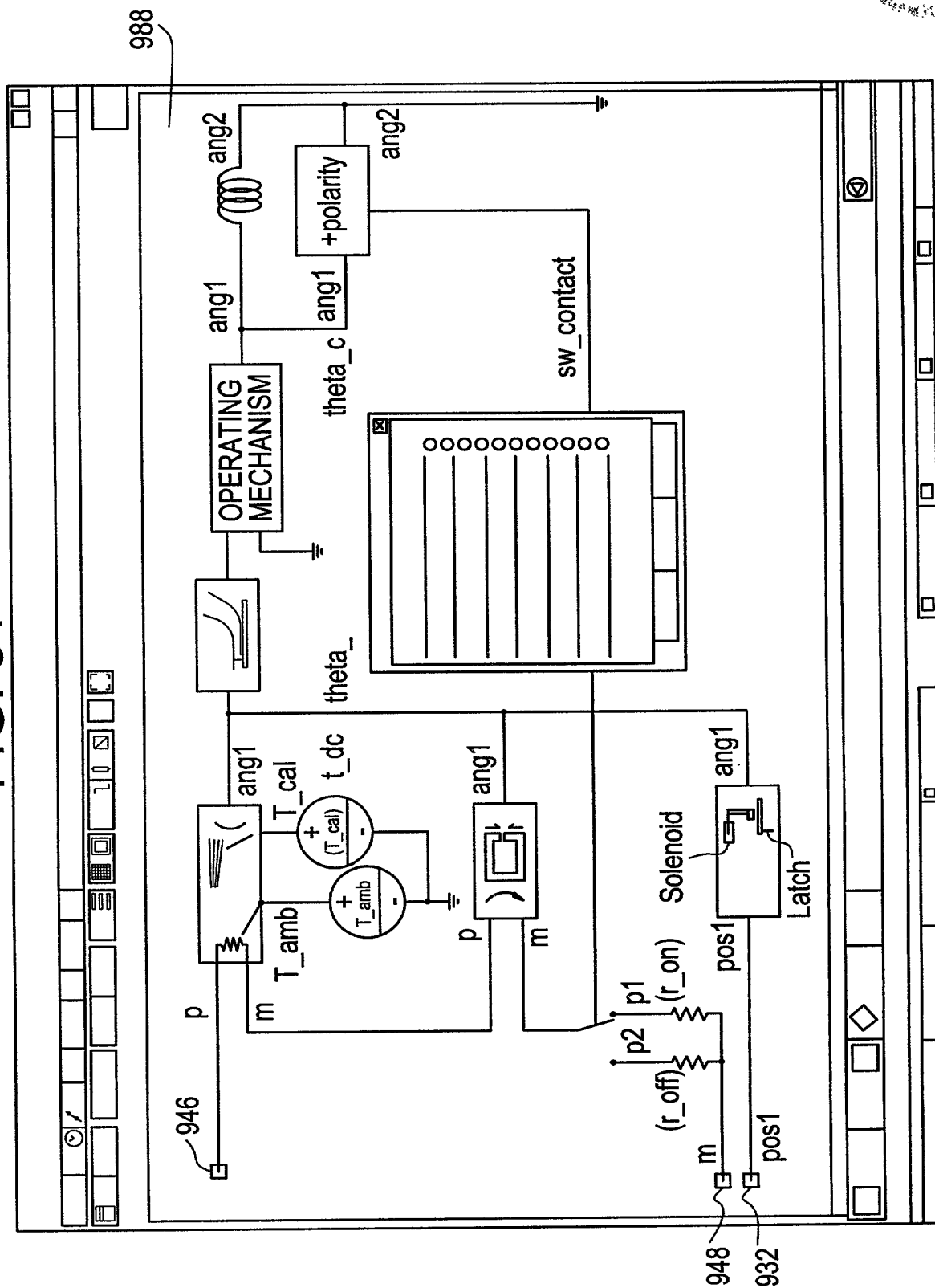
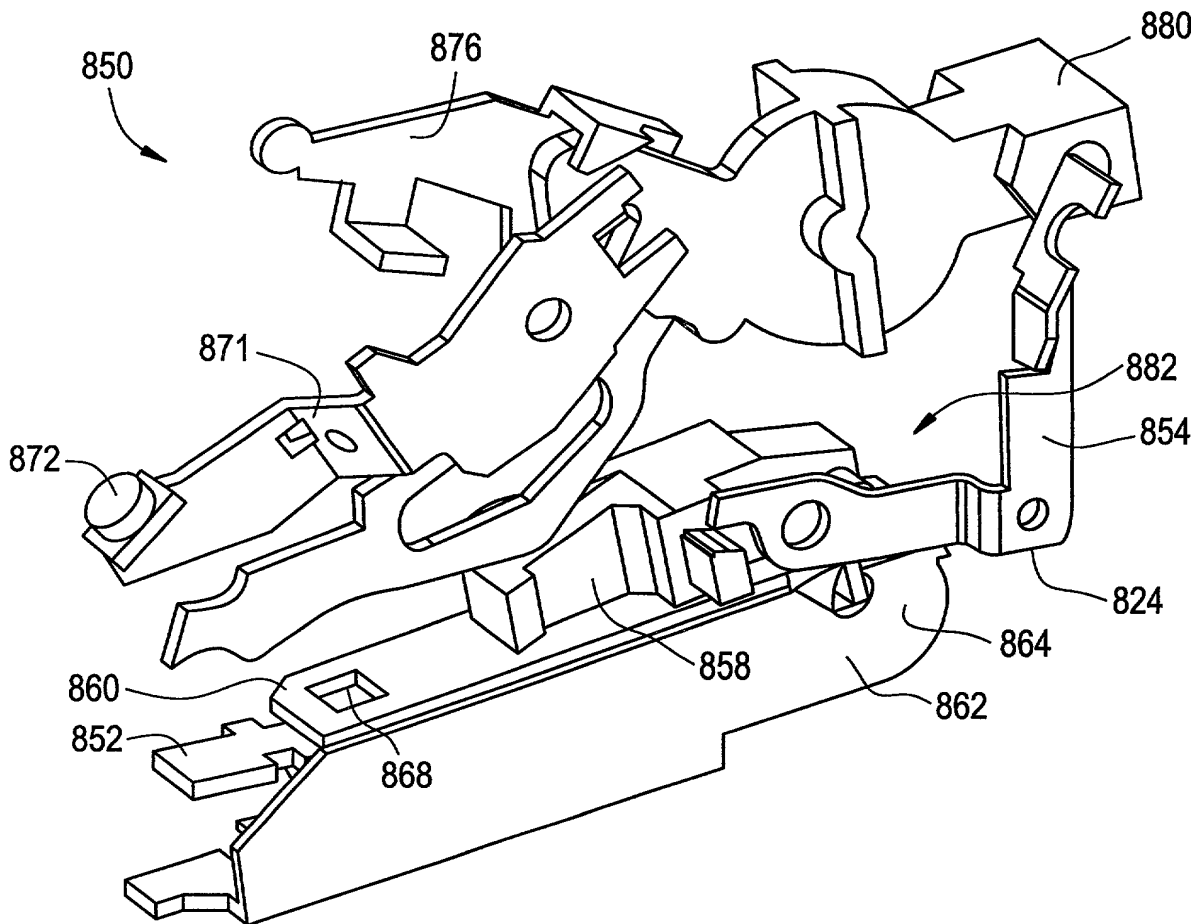




FIG. 35



200710" E568T660